

Notice of Allowability

Application No.

10/617,085

Applicant(s)

YU ET AL.

Examiner

Art Unit

Stephen J. Cherry

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to election of 5-3-2004.
2. ☒ The allowed claim(s) is/are 1-14 and 19-22.
3. ☒ The drawings filed on 10 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>10-14-2003</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Anthony Niewyk on 6-3-2004.

The application has been amended as follows:

Please delete claim 1 and replace with:

"1. A method of estimating a steering angle offset value in a vehicle having a relative position steering angle sensor, said method comprising:

providing a mathematical expression for calculating an estimated steering angle offset value, $\hat{\delta}_{off}$, based upon at least one measured value of a vehicle operating parameter wherein said mathematical expression is definable by:

selecting a mathematical model to describe the dynamic behavior of the vehicle which includes a first variable, δ , representing the steering angle of the vehicle, wherein said mathematical model includes at least one of a Kalman filter and a state observer; and

substituting, for said first variable, δ , the sum of a second variable, $\delta_{Uncenter}$, representing the relative steering angle position and a third

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variable, δ_{off} , representing the steering angle offset in said model to provide said mathematical expression;

obtaining said at least one measured value for said vehicle; and

estimating said steering angle offset value using said at least one measured value and said mathematical expression."

Cancel claims 15-18.

Delete claim 19 and replace with:

"19. A method of filtering a plurality of time indexed values in a process for determining a steering angle position of a vehicle having a relative position steering angle sensor, said method comprising:

estimating a plurality of time indexed steering angle offset values using at least one of a Kalman filter and a state observer;

filtering a plurality of time indexed values which are a function of said plurality of time indexed steering angle offset values using a variable filter coefficient, F_k , said variable filter coefficient, F_k , being determined using an uncertainty factor, U_k , said uncertainty factor, U_k , being determined using at least one value from the group including yaw rate of the vehicle, estimated steering angle position and lateral acceleration of the vehicle."

The following is an examiner's statement of reasons for allowance:

The independent claim 1 recites "selecting a mathematical model to describe the dynamic behavior of the vehicle which includes a first variable, δ , representing the steering angle of the vehicle, wherein said mathematical model includes at least one of a Kalman filter and a state observer". This feature in combination with the remaining claimed structure avoids the prior art of record.

The independent claim 19 recites "estimating a plurality of time indexed steering angle offset values using at least one of a Kalman filter and a state observer". This feature in combination with the remaining claimed structure avoids the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

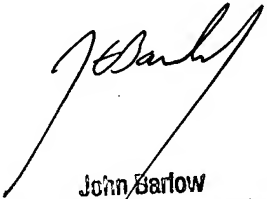
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (571) 272-2272. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SJC



John Barlow
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